Vanuatu Mineral Resources Database

User Manual

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1. Foreword

This manual is a user handbook for the Vanuatu Mineral Resources Database (VMRD). As this system is based on Microsoft Access and MapInfo. We describe here only how to navigate around the Vanuatu Mineral Resources Database (VMRD).It is not intended that this manual be an exhaustive list of instructions on how to use Microsoft Access and MapInfo. Therefore it is strongly recommended that users of the VMRD read the appropriate user manuals for further knowledge of these software packages.

1.1 Requirements:

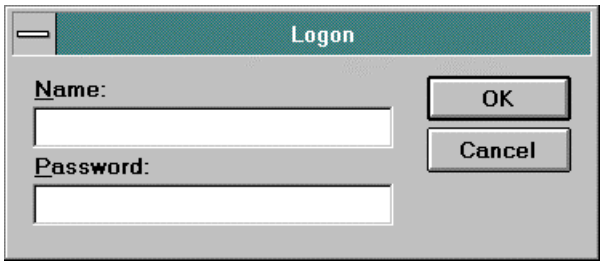
- Compatible PC 486/8Mb with at least 10Mb of free space on the hard drive.
- Windows 3.1 or later
- MS-DOS 5.0 or later
- MS-Access V2.0
- MapInfo V3.0
- Network recommended.
- Large paper size colour printer recommended

2. Entering the Vanuatu Mineral Resources Database

From Program Manager, locate the icon for the above database and double click

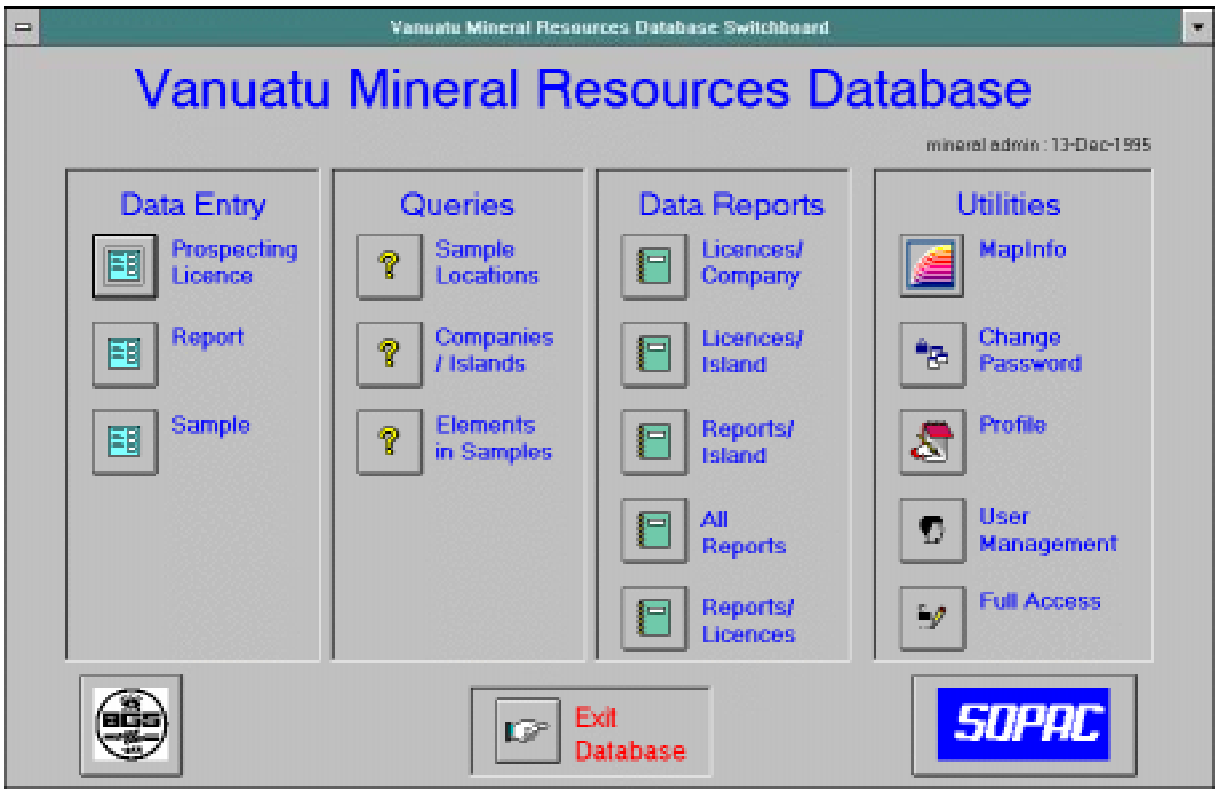
it.

You will be prompted for a user name and password. After typing it correctly, you will see the main screen for the Vanuatu Mineral Resources Database.



2.1 Main Screen or "Switchboard"

This can be viewed as the control centre for the database, from which the user can navigate their way around the different facilities of the data entry, querying and presentation in report form. There is also a section named 'Utilities' where the user may perform other operations such as opening a MapInfo session, changing their password or other database management activities for which there is limited user access for security purposes.

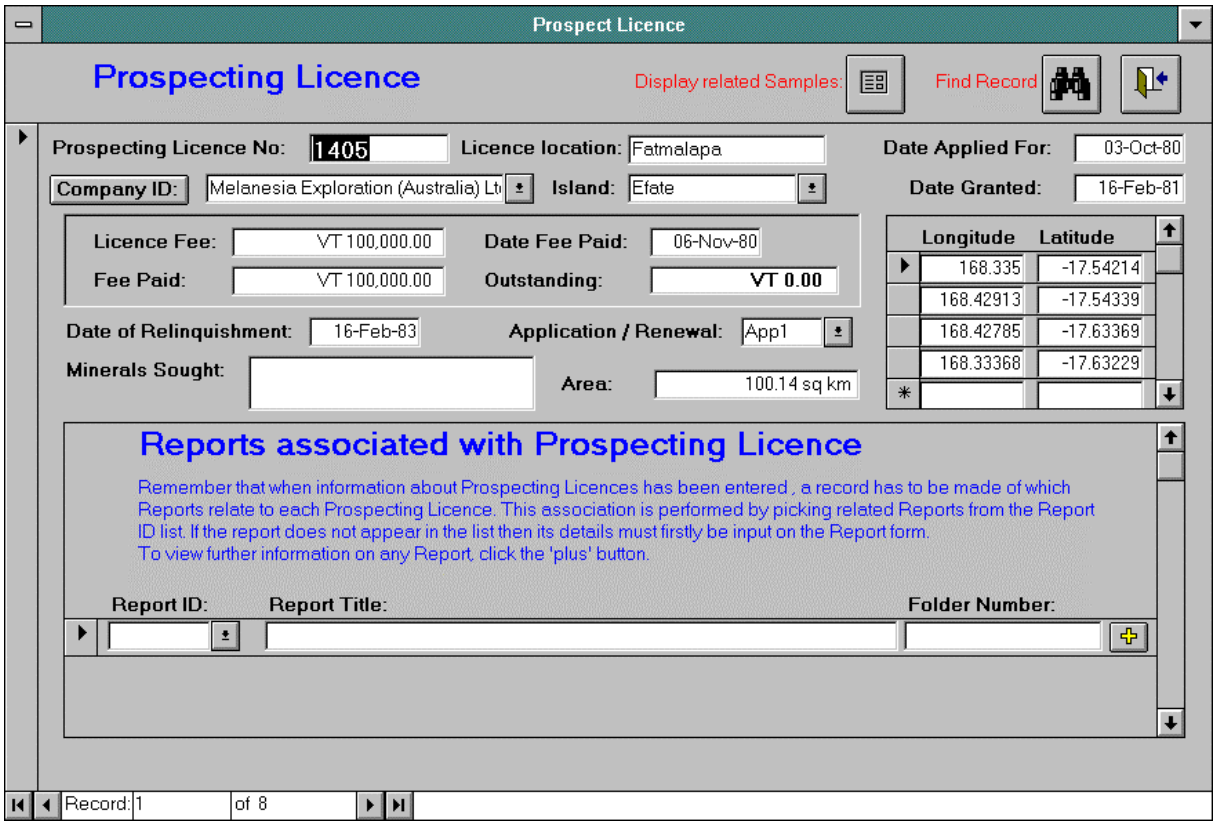


2.2 Data Entry

Data is input via a series of entry forms. Data stored falls into three broad categories; prospecting licence information, report details and sampling data. Each of these three categories has a form through which data is loaded into the database, and these are described below.

2.2.1 Prospecting Licence Information

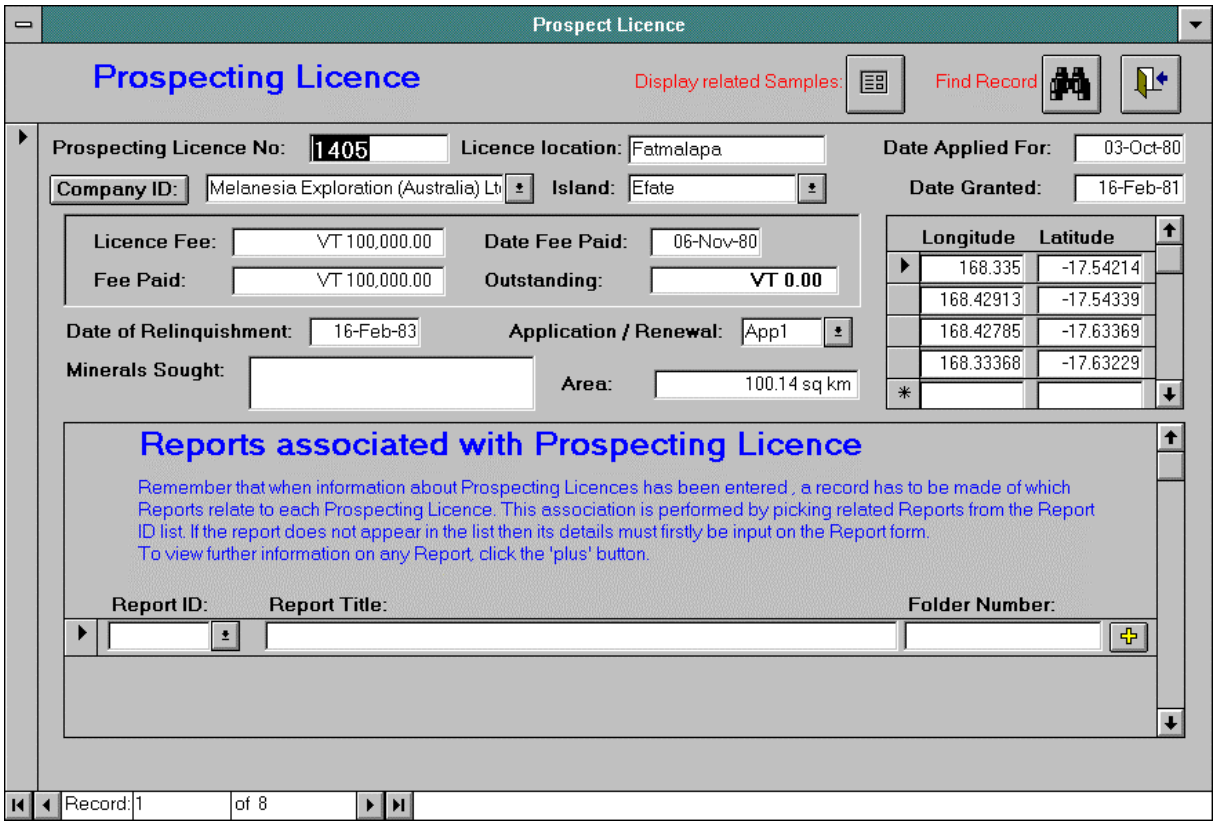
This is the first information to occur in time sequence; a company firstly applies for and receives a Prospecting Licence, and information appearing on the prospecting licence document, such as the name of the company holding the licence, date of issue, details of the prospecting area etc, are recorded. After information relating to reports written about the prospecting licence has been input, the user can cross-reference which reports relate to the licence by picking from a combo box on the form in the section named ‘Reports associated with Prospect.’


Prospect Licence
Prospecting Licence
Display related Samples:
Find Record
Prospecting Licence No: 1405
Licence location: Fatmalapa
Date Applied For: 03-Oct-80
Company ID: Melanesia Exploration (Australia) Lt
Island: Efate
Date Granted: 16-Feb-81
Licence Fee: VT 100,000.00
Date Fee Paid: 06-Nov-80
Fee Paid: VT 100,000.00
Outstanding: VT 0.00
Longitude Latitude
168.335 -17.54214
168.42913 -17.54339
168.42785 -17.63369
168.33368 -17.63229
Date of Relinquishment: 16-Feb-83
Application / Renewal: App1
Minerals Sought:
Area: 100.14 sq km
Reports associated with Prospecting Licence
Remember that when information about Prospecting Licences has been entered , a record has to be made of which Reports relate to each Prospecting Licence. This association is performed by picking related Reports from the Report ID list. If the report does not appear in the list then its details must firstly be input on the Report form.
To view further information on any Report, click the 'plus' button.
Report ID:
Report Title:
Folder Number:
Record: 1 of 8

2.2.2 Report Information

Following the issue of a prospecting licence, a company releases reports periodically, which summarise work done in the licence area. The frequency of these reports may vary, but are often produced quarterly or annually. Information about the report, such as its title, the island it refers to, contents etc are stored on this form.

There is also a facility for the user to view which prospect licences a particular report relates to. Information about which reports relate to which licence is recorded on the prospecting licence form, which is then automatically visible on the report form.


Prospect Licence
Prospecting Licence
Display related Samples:
Find Record
Prospecting Licence No: 1405
Licence location: Fatmalapa
Date Applied For: 03-Oct-80
Company ID: Melanesia Exploration (Australia) Lt
Island: Efate
Date Granted: 16-Feb-81
Licence Fee: VT 100,000.00
Date Fee Paid: 06-Nov-80
Fee Paid: VT 100,000.00
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Application / Renewal: App1
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Area: 100.14 sq km
Longitude Latitude
168.335 -17.54214
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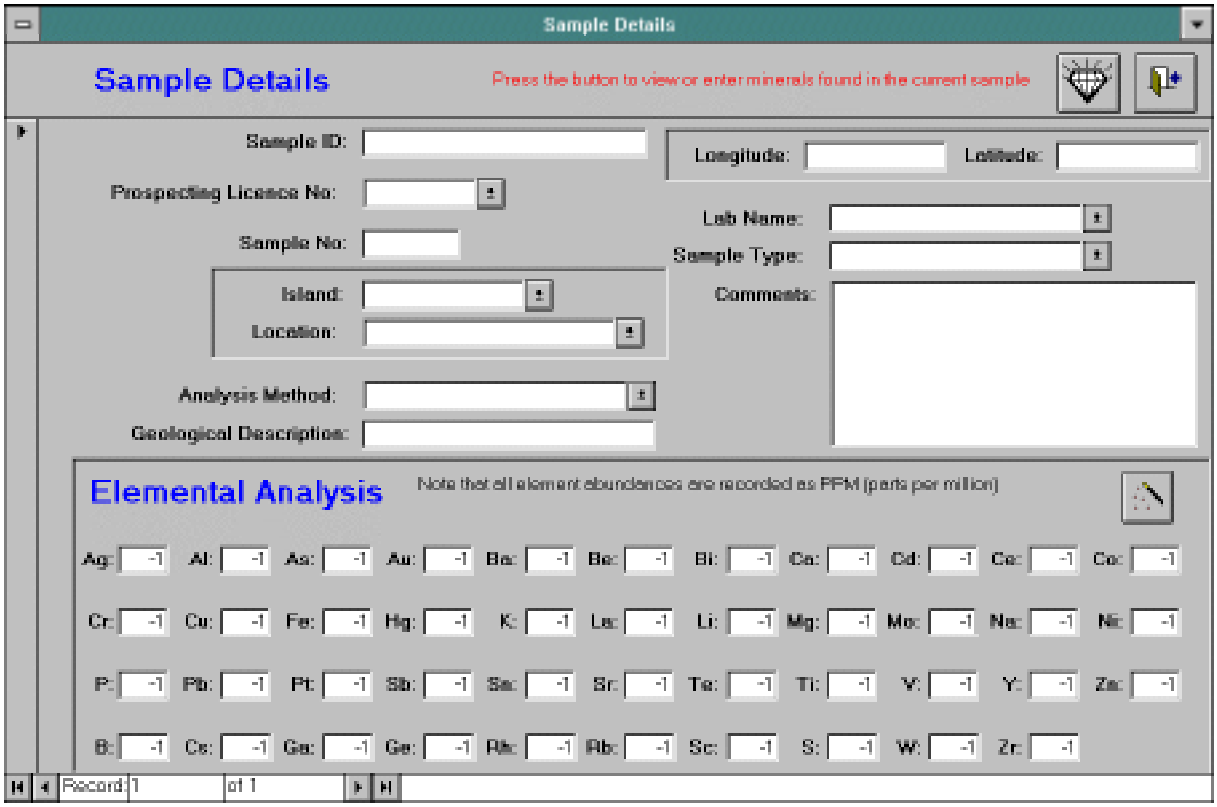
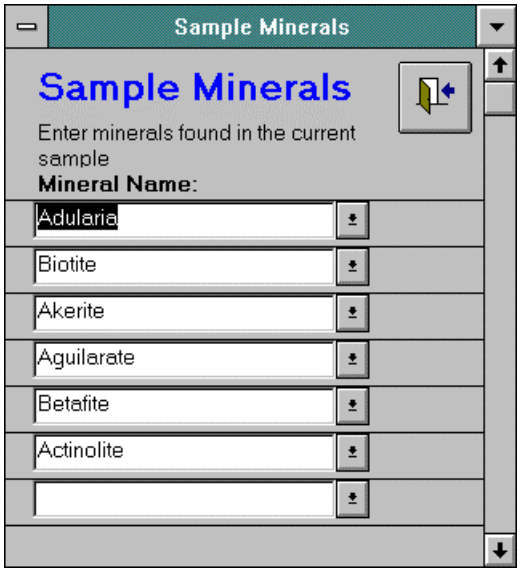
Reports associated with Prospecting Licence
Remember that when information about Prospecting Licences has been entered , a record has to be made of which Reports relate to each Prospecting Licence. This association is performed by picking related Reports from the Report ID list. If the report does not appear in the list then its details must firstly be input on the Report form.
To view further information on any Report, click the 'plus' button.
Report ID:
Report Title:
Folder Number:
Record: 1 of 8

2.2.3 Sample Information

This is usually collected from within company reports on an area, and provides data such as the longitude and latitude of the sampling site, the type of sample taken (e.g. stream sediment, rock chip, etc), and often the results of element analysis.


Sample Details
Sample Details
Press the button to view or enter minerals found in the current sample
Sample ID:
Longitude:
Latitude:
Prospecting Licence No:
Lab Name:
Sample No:
Sample Type:
Island:
Location:
Comments:
Analysis Method:
Geological Description:
Elemental Analysis
Note that all element abundances are recorded as PPM (parts per million)
Ag: -1 Al: -1 As: -1 Au: -1 Ba: -1 Be: -1 Bi: -1 Ca: -1 Cd: -1 Ce: -1 Co: -1
Cr: -1 Cu: -1 Fe: -1 Hg: -1 K: -1 La: -1 Li: -1 Mg: -1 Mo: -1 Na: -1 Ni: -1
P: -1 Pb: -1 Pt: -1 Sb: -1 Se: -1 Sr: -1 Te: -1 Ti: -1 V: -1 Y: -1 Zn: -1
B: -1 Ce: -1 Ga: -1 Ge: -1 Rb: -1 Rb: -1 Sc: -1 S: -1 W: -1 Zr: -1
Record: 1 of 1

The button at the top of the form allows the user to record minerals present in the sample, if any.



2.3 Features to note on Forms

Forms are designed to be user-friendly, and the user should be aware of the following:

- Fields - these are the items of information to be stored in the database. Each time a new record is entered on a form, a new line of data is put into one or more underlying tables.
- Status Bar - If the user is not sure of what to enter in a field, the status bar at the base of the screen will display the definition of the field that currently has the focus (i.e. which box on the form contains the cursor).
- Navigation buttons - these help the user to move or 'navigate' through the records.
- Other Buttons - these are usually located at the top right-hand side of the screen. Different symbols mean different actions e.g. closing door means 'close the form.' A pair of binoculars means 'Find a particular record.'
- Combo boxes - A combo box can make data entry easier, quicker, and more accurate by presenting a scrollable list from which values can be directly picked.
- Error Messages - to ensure data quality, there are built-in rules concerning the values data can be stored as. Some of these are summarised below.

Error Message	**Applies to:**
"The value you entered isn't appropriate for the field"	Fields whose underlying data type is different from the data you tried to enter. For example, information about dates is usually stored in the VMRD in Medium date format, i.e. 22-Nov-95. If you try and enter the date as 22/11/95, for example, you will get this message. You would see the same error message if you tried to enter text into a field whose data type is defined as a Number.
"The value you enter must match an entry in the list"	This applies to Combo Boxes when you try to enter a value that is not in the list, which is not acceptable for

	the list.
"The value you entered isn't in the list - do you want to add it?"	This applies to Combo Boxes when you enter a value that does not occur in the list, but which is accepted if you want to add it.
# Name?	The name entered as the source of the value in the field is invalid. For example, you may have entered an invalid name or expression for the ControlSource property: The name may be misspelled, you may have omitted the equal sign (=) before the expression, or the source itself may have been deleted. Other causes include the following: The field name may not match the name of a field in an underlying table or query. A control may have the same name as one of the fields in the underlying table or query. An expression designed to calculate a sum for a control might include a Sum function (which can be used to calculate sums for fields only, not controls).
# Error	Microsoft Access can't evaluate an expression used.
# Deleted	If you are working on the database at the same time as somebody else, this is the message that is displayed for a record that no longer exists because it has been deleted.
Custom Messages e.g. "Value must be either App1, initial application, Ren1, first renewal or Ren2, second renewal.	These depend on the underlying validation rule; in this case, the data that can be entered into this field is restricted to one of three values.

2.4 Queries

There are a number of different queries set up for use in the database which are easy to run and require little input from the user.

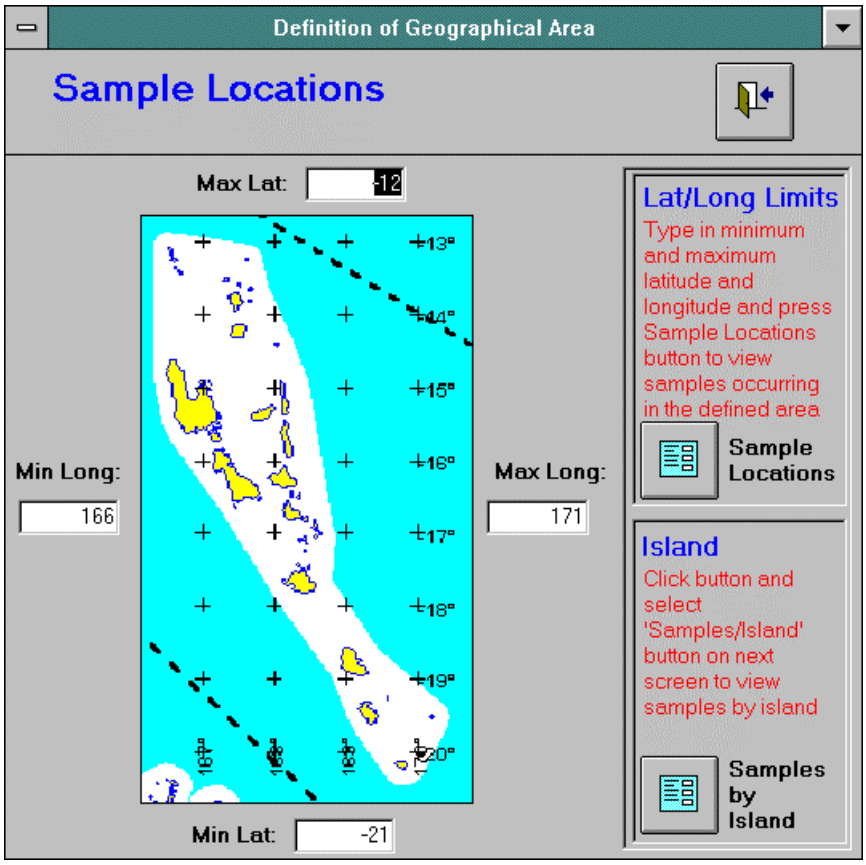
These are summarised below.

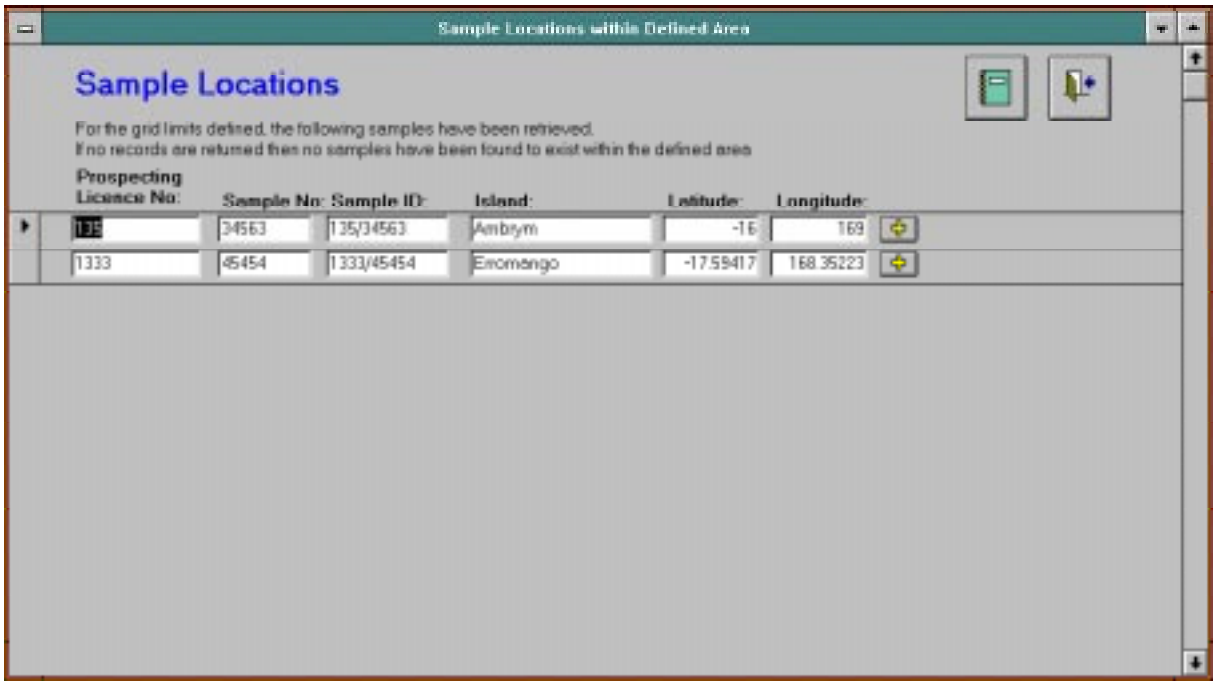
2.4.1 Sample Locations

On clicking the button, a screen appears displaying a location map of Vanuatu and its main islands. There are four boxes into which maximum and minimum values for latitude and longitude can be typed in. When done, on clicking the button marked 'Sample Sites' a screen appears, presenting information about samples falling into the selected area.

If the user does not set their own values for latitude and longitude, default values are set which include the entire Vanuatu area.

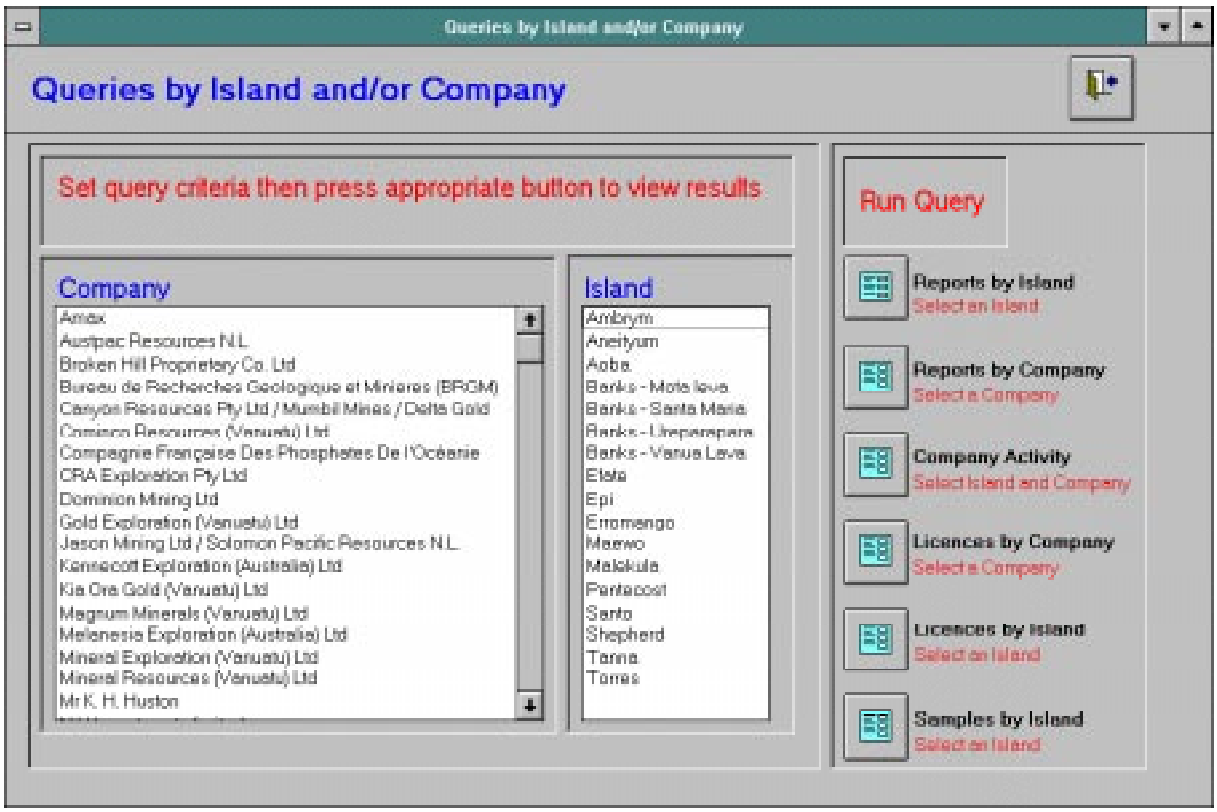
On this screen are two buttons - one to close the screen, and the other to provide a printout of the query's current result.





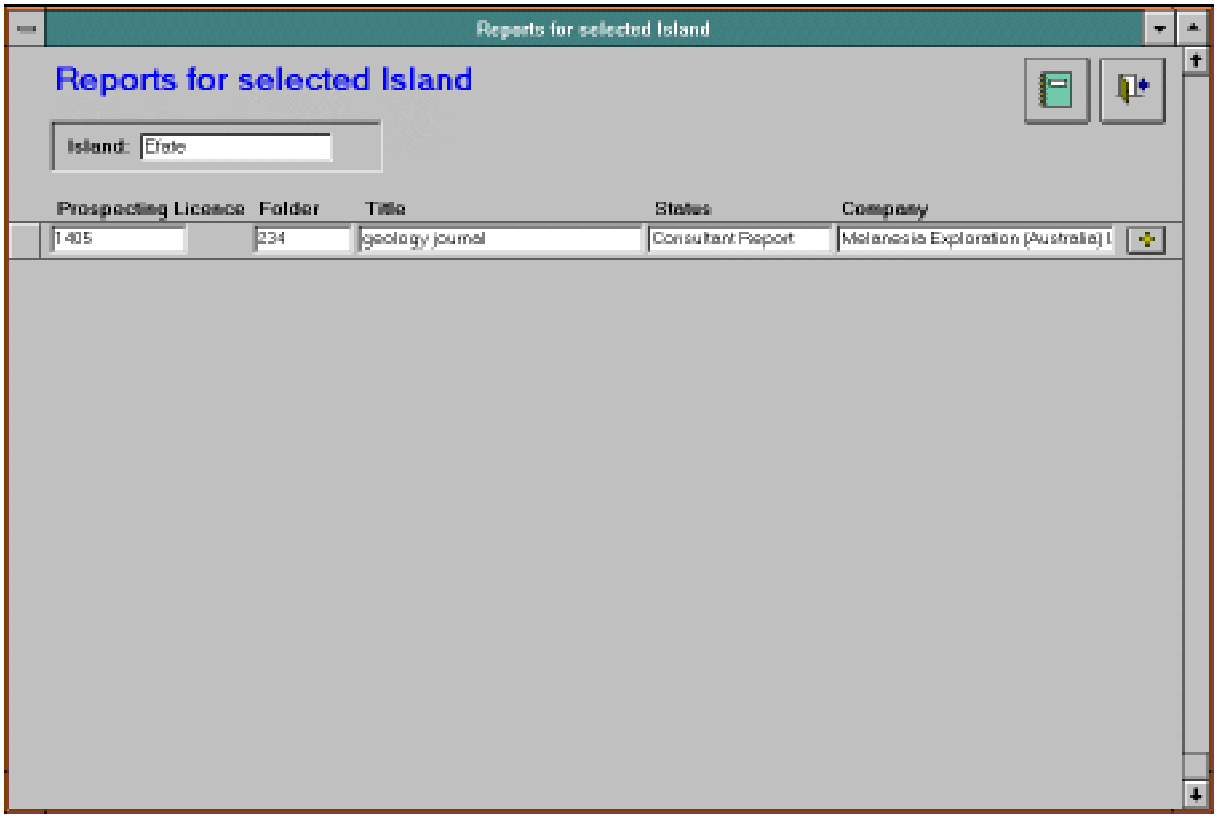
2.4.2 Companies / Islands

This button, when clicked, leads to another screen containing two lists and six query buttons.

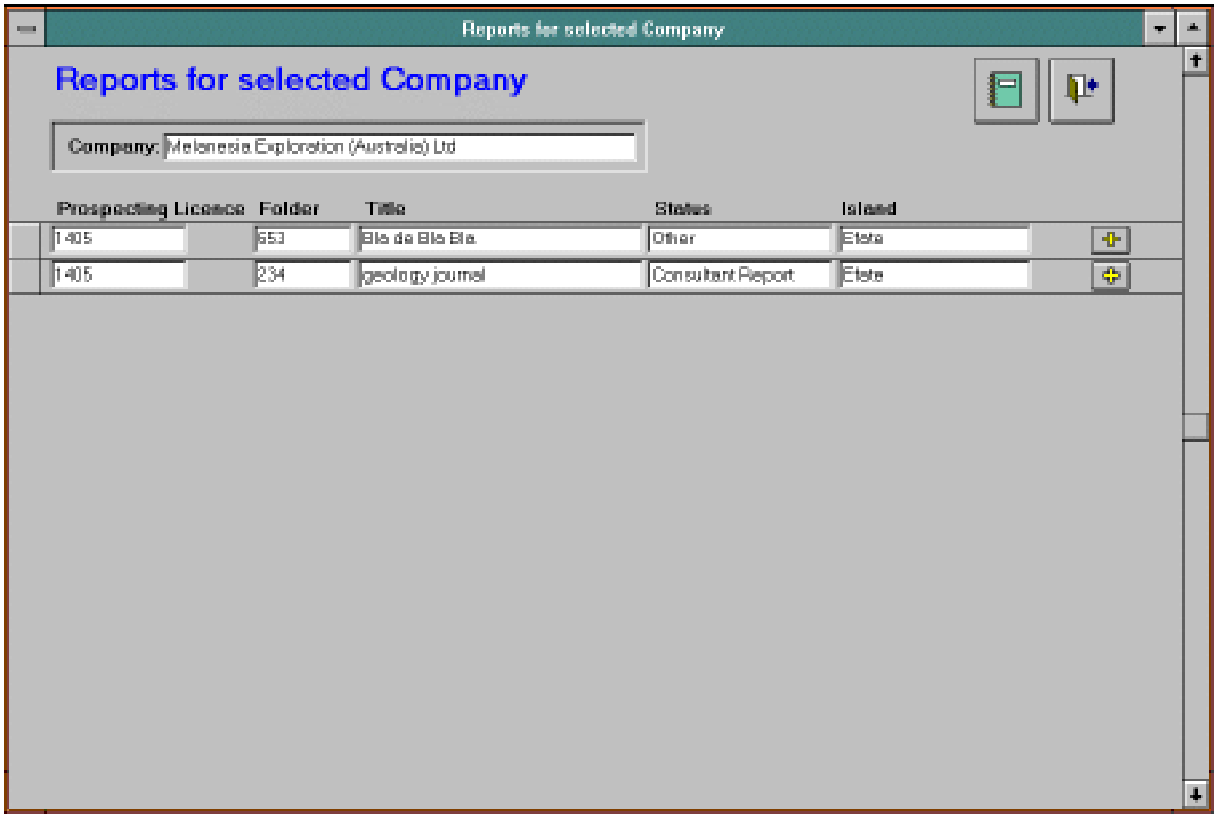


By selecting a company name and/or an island, depending on which button is to be pressed, a query is run presenting information fulfilling the set criteria.

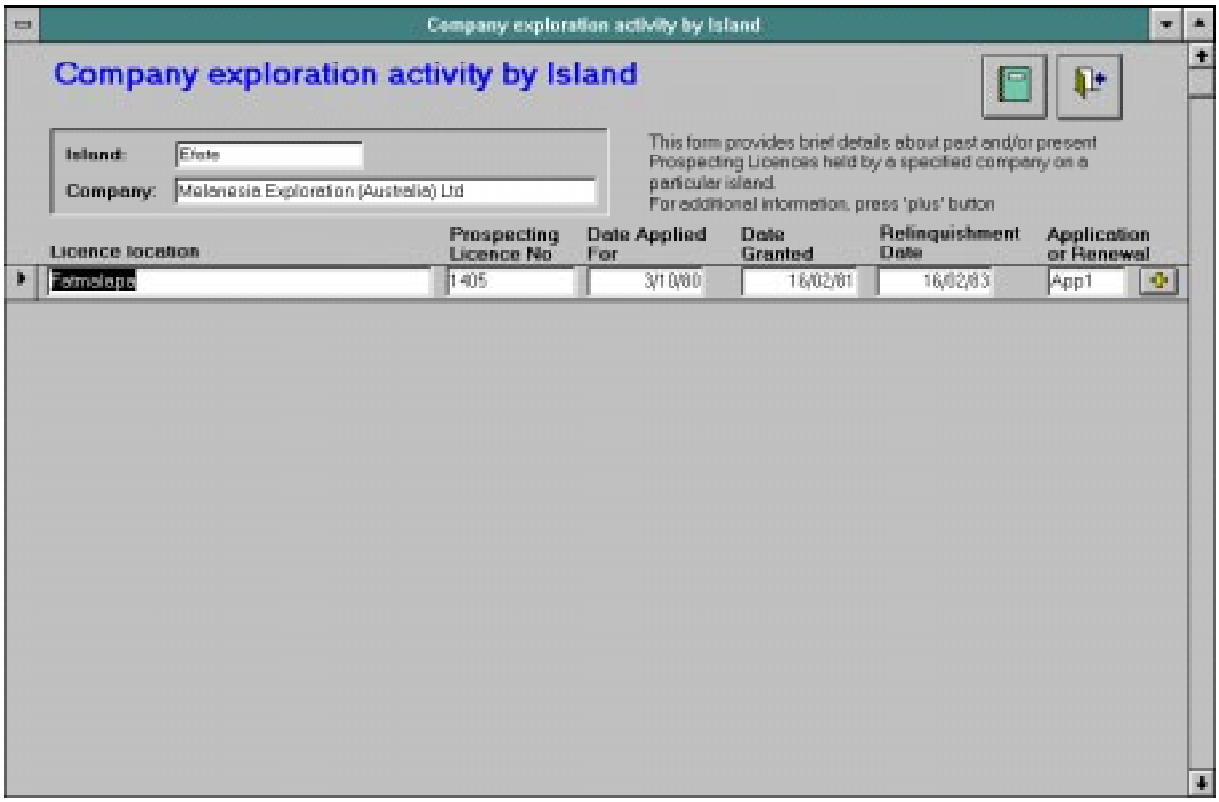
- Reports by Island - this button is pressed when an island has been selected, and following this a screen is presented, containing a summary of information about reports related to the selected island.



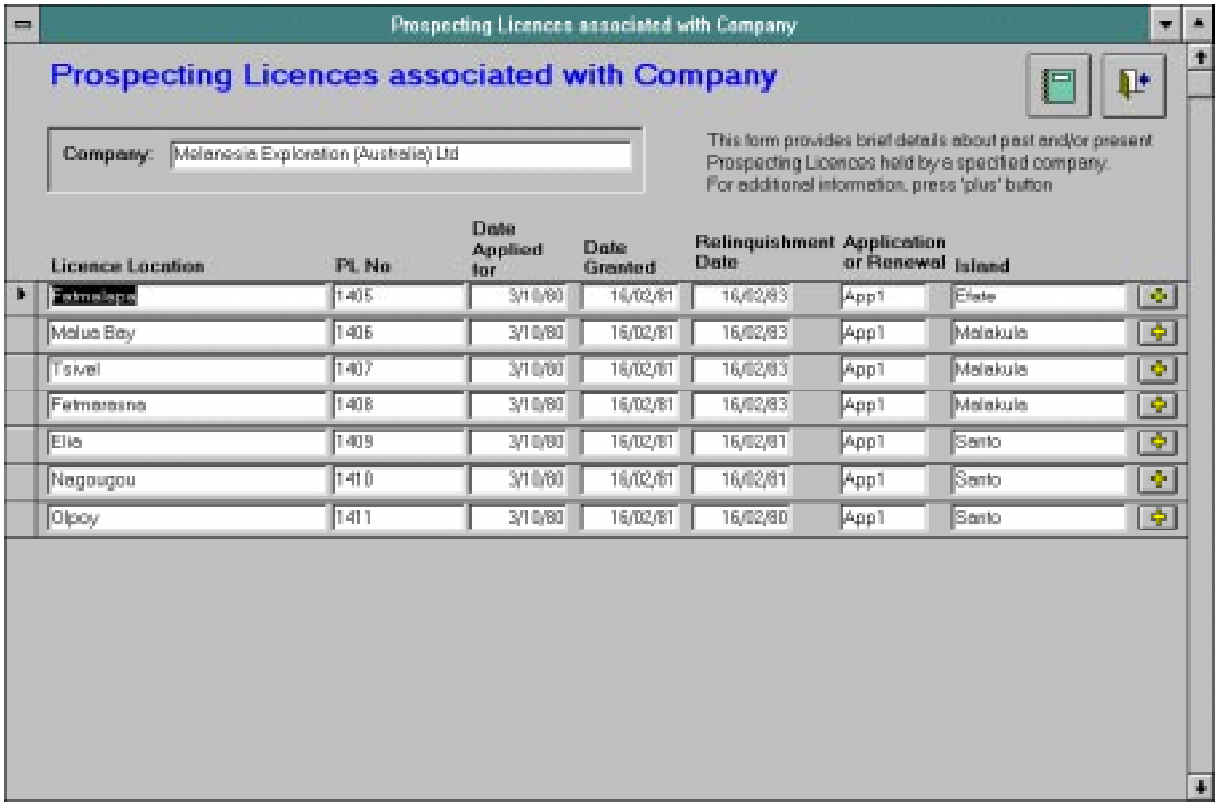
- Reports by Company - very similar to the above, except that a company name is selected prior to running the query.



- Company Activity - a summary of all prospecting licences is given for a selected island and company.



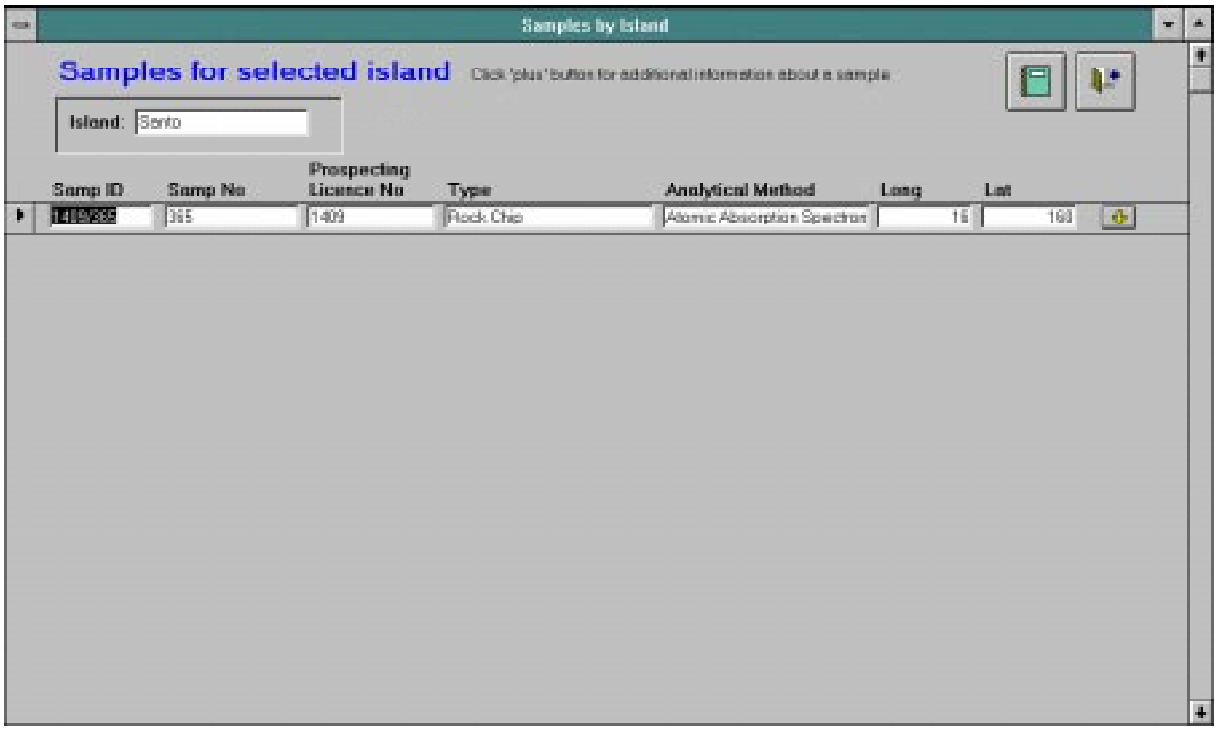
- Licences by Company - a summary of prospecting licences is presented for a selected company.


Prospecting Licences associated with Company
Prospecting Licences associated with Company
Company: Melanesia Exploration (Australia) Ltd
This form provides brief details about past and/or present Prospecting Licences held by a specified company.
For additional information, press 'plus' button
Licence Location
PL No
Date Applied for
Date Granted
Relinquishment Date
Application or Renewal
Island
Fatmalaga 1405 3/10/80 16/02/81 16/02/83 App1 Efate
Malua Bay 1406 3/10/80 16/02/81 16/02/83 App1 Malakula
Tsivel 1407 3/10/80 16/02/81 16/02/83 App1 Malakula
Fatmarsina 1408 3/10/80 16/02/81 16/02/83 App1 Malakula
Elia 1409 3/10/80 16/02/81 16/02/81 App1 Santo
Nagougou 1410 3/10/80 16/02/81 16/02/81 App1 Santo
Olpoy 1411 3/10/80 16/02/81 16/02/80 App1 Santo

- Licences by Island - a listing of licences by selected island is given.

Prospecting Licences associated with Island
Prospecting Licences associated with Island
Island: Efate
This form provides brief details about past and/or present Prospecting Licences based on a specified island.
For additional information, press 'plus' button
Licence Location
Prospecting Licence No
Date Applied for
Date Granted
Rel'ment Date
Application or Renewal
Company
Fatmalaga 1405 3/10/80 16/02/81 16/02/83 App1 Melanesia Exploration

- Samples by Island - a listing of samples located in a selected island is given.



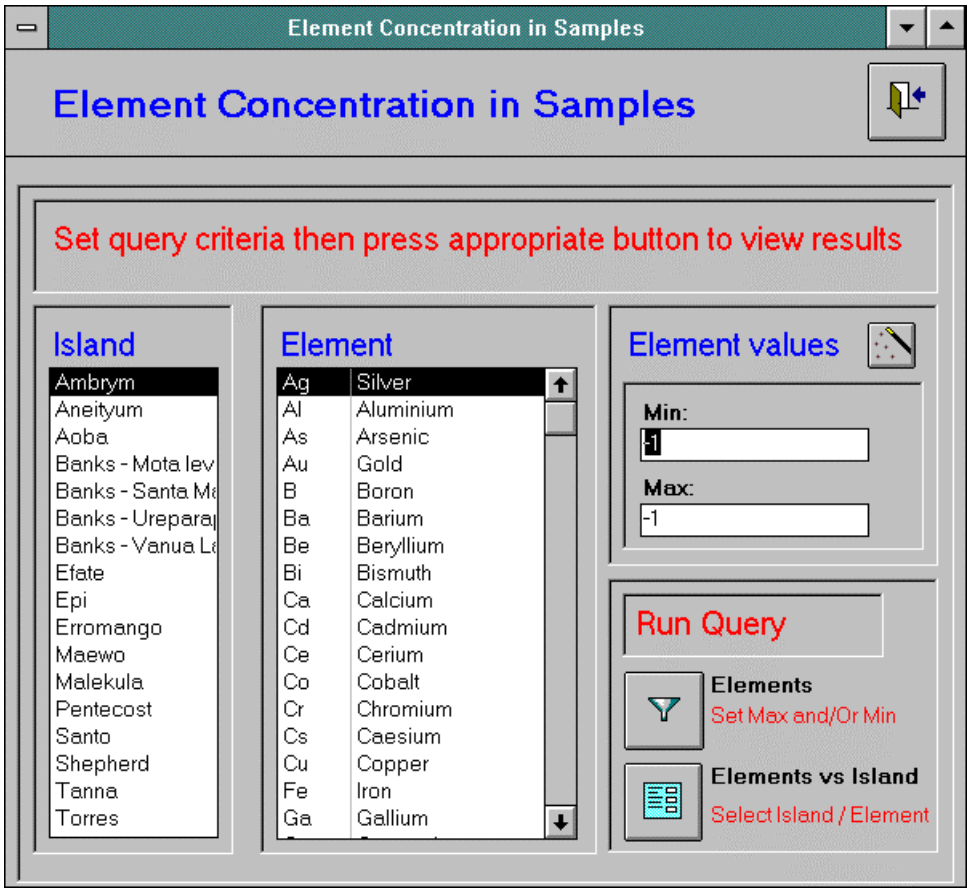
In the instance that no records exist for the set criteria for the query being run, a message box appears on screen informing the user that no records were retrieved.

Each query output screen contains a button that will print a hardcopy summary of the query results, and a close button.

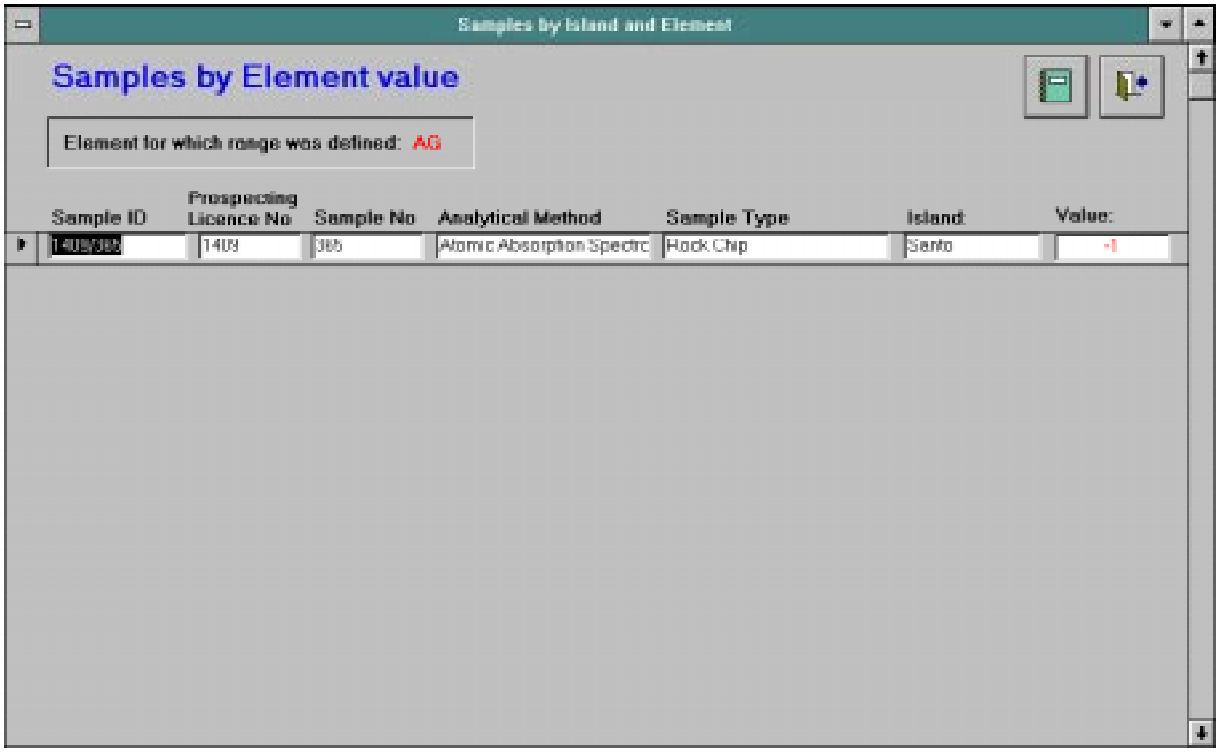
Some of the query screens contain a small button with a ‘plus’ symbol; if this button is pressed, the user is shown additional information about the prospecting licence, report or sample in question.

2.4.3 Elements in Samples

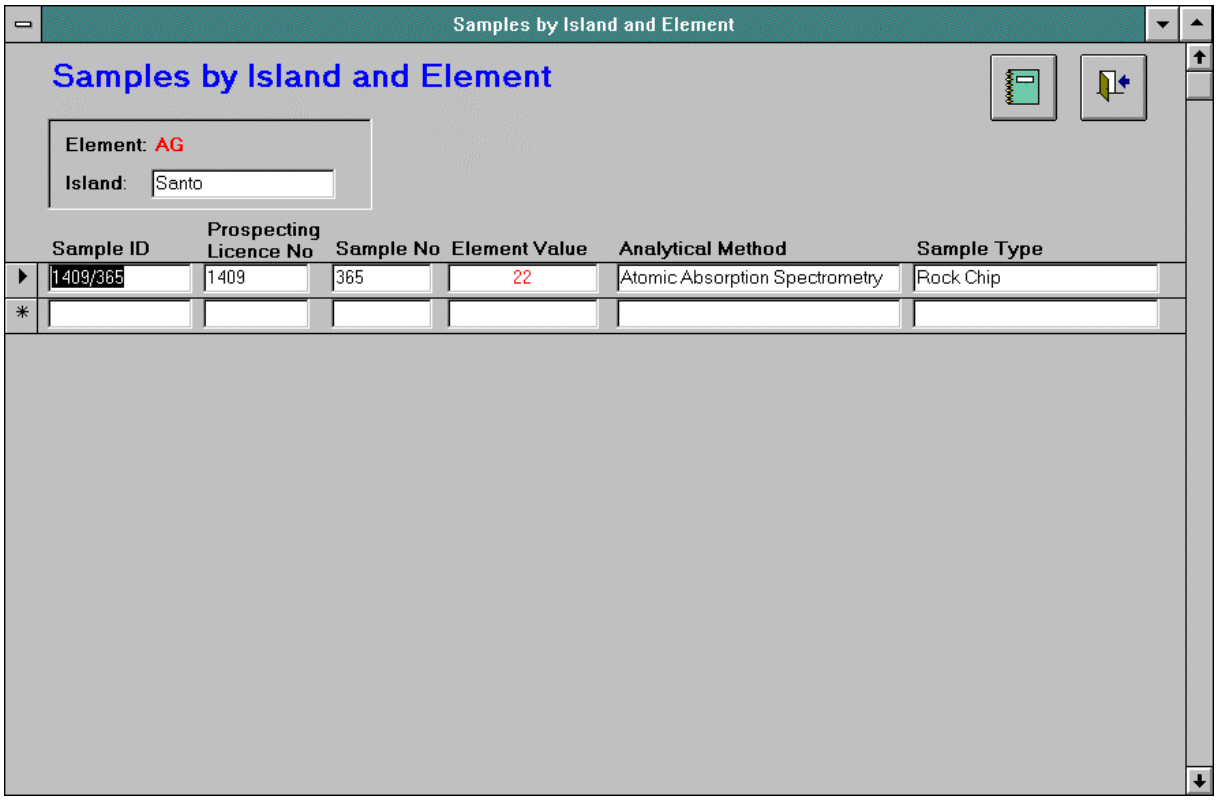
This button leads the user to another screen containing a list of elements and another list containing island names. There are two query buttons:



- Element - for a selected element, maximum and minimum ppm values are set, and a query is run, retrieving all instances of samples containing the selected element within the set range. Note that -1 is a value assigned to an element that either has not bee analysed for the sample, or if its value falls below the limit of detection.



- Elements vs Island - for a selected island and element, all samples are retrieved fulfilling the criteria.



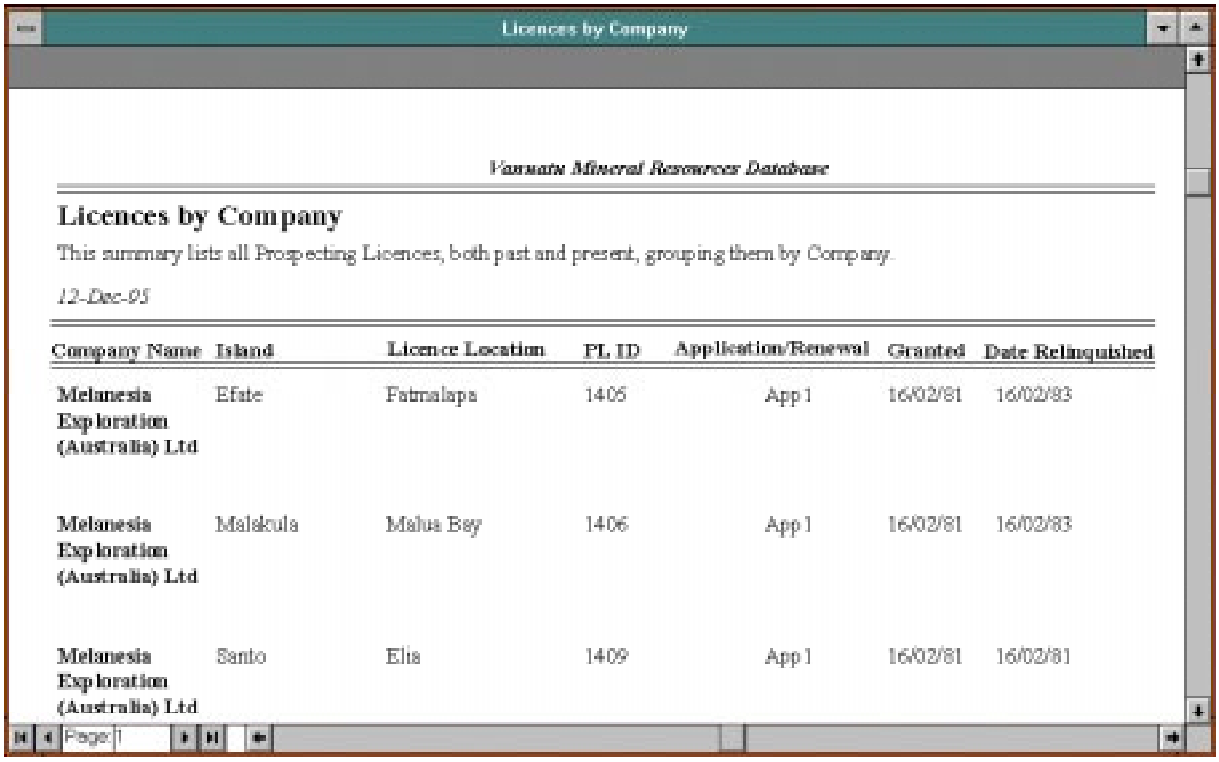
As with other queries, each of the output screens contains a report button and a close button.

2.5 Reports

As seen from the above section, reports are a neat way of presenting the results of a query in hardcopy format. Each of the above queries has a report facility attached to it.

On the Switchboard, there are three further reports that have been set up for use:

- Licences / Company - provides a listing of all prospecting licences stored in the database, grouped by company name.


Licences by Company
Vanuatu Mineral Resources Database
Licences by Company
This summary lists all Prospecting Licences, both past and present, grouping them by Company.
12-Dec-95
Company Name Island Licence Location PL ID Application/Renewal Granted Date Relinquished
Melanesia Exploration (Australia) Ltd Efate Fatmalapa 1405 App 1 16/02/81 16/02/83
Melanesia Exploration (Australia) Ltd Malakula Malua Bay 1406 App 1 16/02/81 16/02/83
Melanesia Exploration (Australia) Ltd Santo Elia 1409 App 1 16/02/81 16/02/81
Page: 1

- Licences / Island - provides a listing of all prospecting licences stored in the database, grouped by island.
- Reports / Island - provides a listing of all reports stored in the database, grouped by island.

On clicking the required button, the user is presented with a preview of how the document will look when printed.

2.6 Utilities

There are five buttons, providing different facilities which are summarised briefly below:

- MapInfo - starts a MapInfo session
- Change Password - allows the user to change their password
- Profile - allows the user to set the correct drive path for loading data into MapInfo
- User Management - assign a new user or change permissions - Database Manager only.
- Full Access - access to the actual workings of the database - Database Manager only.
-

3. Data Input

3.1 How to enter the Prospecting Licences.

3.1.1 The registration form

3.1.1.1 Old form before 1985

Before 1985 Vanuatu law stated a requirement for quoting the prospecting licence area boundaries in relation to a reference point. This reference point was sited on the map by the IGN (Institut Géographique National),and

based on the Bellevue Datum. Nevertheless this map series is inaccurate as most of the islands are misplaced relative to oneanother . Currently, an Excel spreadsheet is used to compute the Prospecting Licence boundaries based on the Bellevue Datum.

3.1.1.2 Current form

After 1985 Vanuatu law started to require the Geodetic coordinates of the boundaries of the prospecting licence, which is easier as these coordinates were in the old projection system made by IGN (Bellevue Datum). The Data Operator will have to ensure that conversions are made for these geodetic coordinates from Bellevue to WGS84, which is the new map system adopted by the Vanuatu Republic.

3.1.2 The map systems

A decision has been made in Vanuatu to produce a new accurate map series of the regional geography. This work is under process by the Lands & Survey Department and the new series of maps should be compatible with data derived from GPS (Global Positioning System).

3.1.2.1 IGN Datum

Universal Transverse Mercator (UTM)

International Ellipsoid

Bellevue Datum

Zone 58, 59 Southern Hemisphere

3.1.2.2 GPS Datum (adopted in 1994)

Universal Transverse Mercator (UTM)

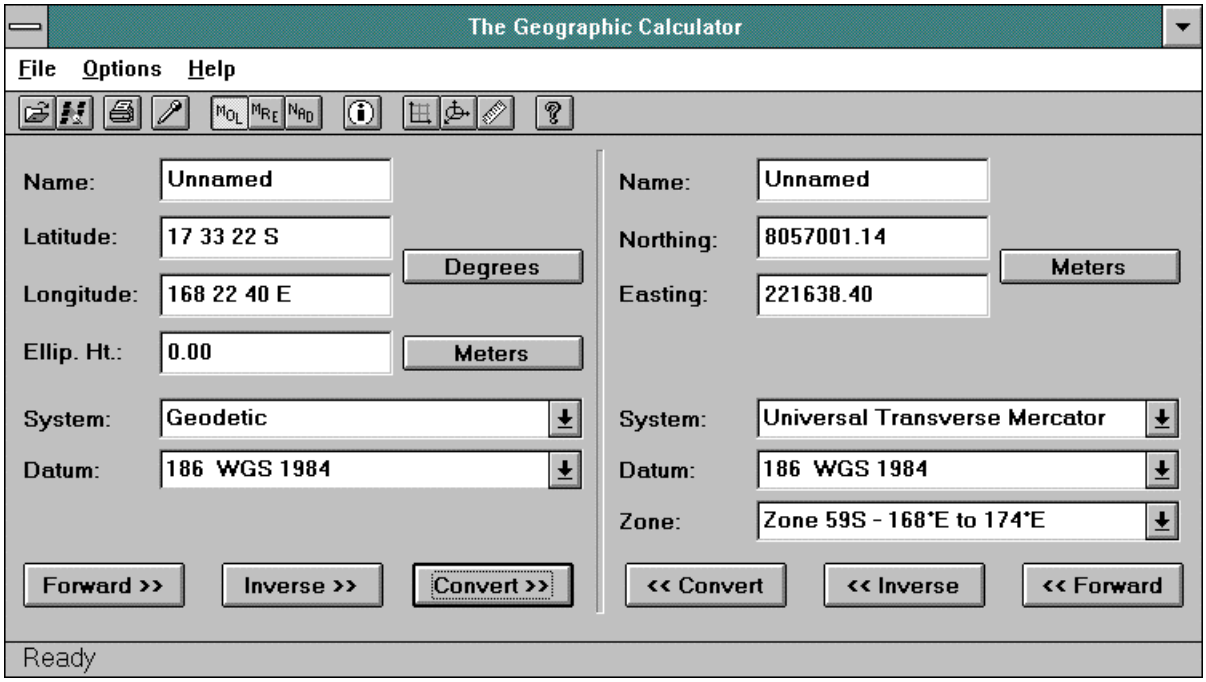
World Geodetic System ellipsoid (WGS84)

Zone 58, 59 Southern Hemisphere

Mean Sea Level (Local)

3.1.3 Compute Prospecting Licence boundaries based on the old form.

3.1.3.1 Reference point co-ordinates



The Geographic Calculator is used to convert the reference point from one projection to another. In the old-style form, the geodetic (Longitude/ Latitude) coordinates for the reference point are determined and converted from Geodetic/Bellevue to UTM WGS84.

If the reference point is sited on the new map series, conversion is from Geodetic/WGS84 to UTM/WGS84.

3.1.3.2 Compute boundaries

The spreadsheet below shows the data entered for a given prospecting licence (e.g. 1405) registered in the old form. We convert the reference point Origin Long and Origin Lat to Northing/Easting in UTM/WGS85 Zone 58S or 59S

PL ID	APP/REN	Origin Long	Origin Lat	Zone	Easting	Northing	East1	North1	East2	North2	East3	North3	East4	North4
1405	APP1	168 22 40 E	17 33 22 S	59S	221638.4	8057001.14	217073.329	8058484.42	227073.329	8058484.42	227073.329	8048484.42	217073.329	8048484.42
1406	APP1	167 13 E	16 05 S	58S	737126.11	8220554.22	735226.11	8233845.12	745226.11	8233845.12	745226.11	8223845.12	735226.11	8223845.12
1407	APP1	167 27 E	16 21 S	58S	7617436.35	8190751.19	7614436.35	8205947.34	7624436.35	8205947.34	7624436.35	8195947.34	7614436.35	8195947.34

We then use the spreadsheet below to compute the boundaries of the given prospecting licence. We record t the coordinates of the reference point (Easting/Northing), which have been previously computed, as well as the bearing and distance to the first corner of the prospecting licence area. The height and width of the prospecting licence is also noted. The First corner of the prospecting licence is centred on the figure and its coordinates are: 217073.3287E 8058484.422N.

Please Enter		Easting	Northing							
Origin Point		221638.4	8057001.14							
					207073.3287	217073.3287		227073.3287	**Easting**	
	Bearing	288			8068484.422					
	Distance	4800								
					8058484.422	SE	SW			
						NE	NW			
	Vertical side	10000								
	Horizontal side	10000			8048484.422					
					Northing					
	Use Geographic Calculator to Convert:									
	Universe Transverse Mercator					Geographic				
	39 Bellevue					3 World Geodetic System 1984				
	Zone 59S	Zone 58S								

Depending on whether the corner is NE, SE, SW or NW, we will consider the lower left, upper left, upper right or lower right rectangle to calculate the coordinates of the prospecting licence boundaries. These coordinates will be reported on the first spreadsheet as East1/North1 to East4/North4. The first point East1/North1 is always the upper left point of the selected rectangle. The other points are taken clockwise.

3.1.3.3 Transform to WGS84 co-ordinates

PL ID	APP/REN	Origin Long	Origin Lat	Zone	Easting	Northing	East1	North1	East2	North2	East3	North3	East4	North4
1405	APP1	168 22 40 E	17 33 22 S	59S	221638.4	8057001.14	217073.329	8058484.42	227073.329	8058484.42	227073.329	8048484.42	217073.329	8048484.42
1406	APP1	167 13 E	16 05 S	58S	737126.11	8220554.22	735226.11	8233845.12	745226.11	8233845.12	745226.11	8223845.12	735226.11	8223845.12
1407	APP1	167 27 E	16 21 S	58S	7617436.35	8190751.19	7614436.35	8205947.34	7624436.35	8205947.34	7624436.35	8195947.34	7614436.35	8195947.34

The last transformation is to put back all these coordinates into Geodetic/WGS84. The Geographic Calculator is used to perform this task.

East1	North1	East2	North2	East3	North3	East4	North4	Long1	Lat1	Long2	Lat2	Long3	Lat3	Long4
217073.329	8058484.42	227073.329	8058484.42	227073.329	8048484.42	217073.329	8048484.42	168.335004	-17.542144	168.429127	-17.543389	168.427849	-17.633687	168.333679
735226.11	8233845.12	745226.11	8233845.12	745226.11	8223845.12	735226.11	8223845.12							
7614436.35	8205947.34	7624436.35	8205947.34	7624436.35	8195947.34	7614436.35	8195947.34							
			0	0		0	0							

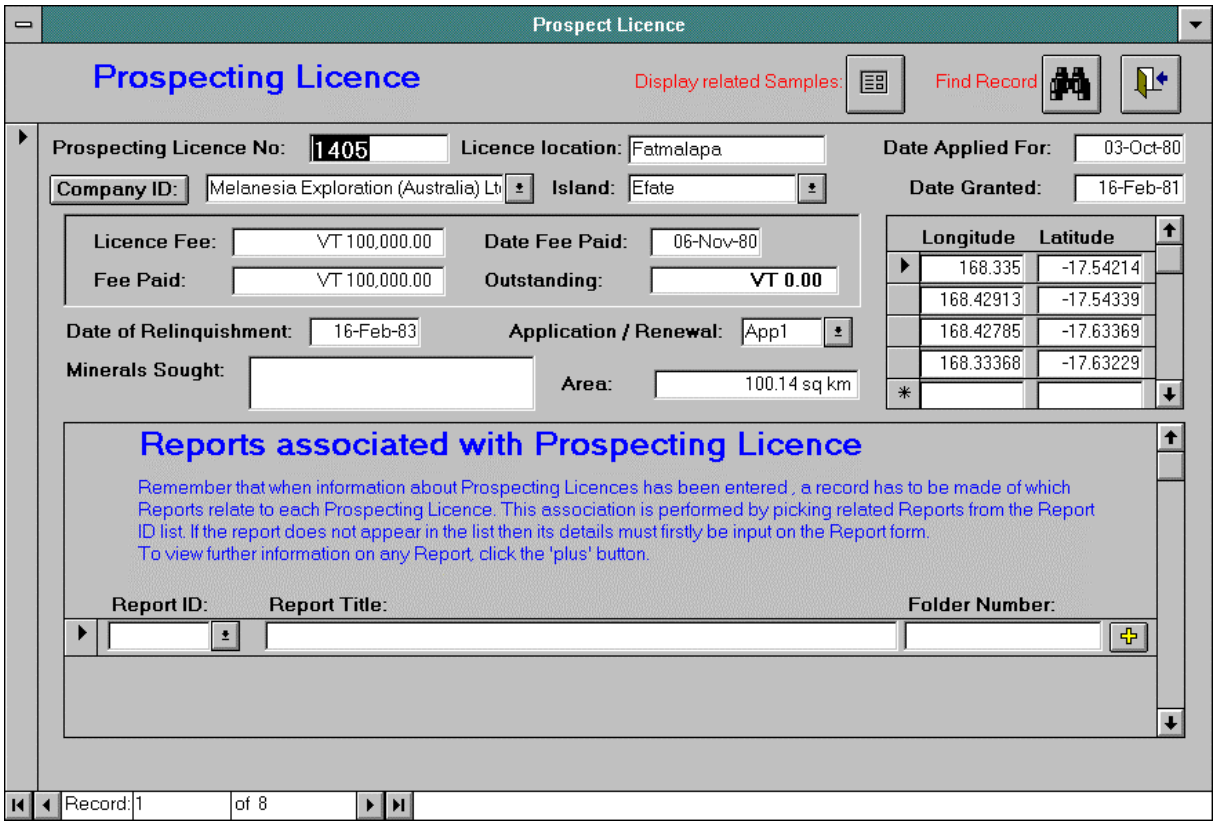
The latitude and longitude pairs, i.e. Long1/Lat1 to Long4/Lat4, are then recorded on the database entry form.

3.1.4 Compute Prospecting Licence based on the current form

For the current prospecting licence registration form, the boundaries of the prospecting licence are given in geodetic format. The operator needs only to convert them from Geodetic/Bellevue to Geodetic/WGS84 when appropriate.

3.1.5 Entering Data in Prospecting Licence Access Form.

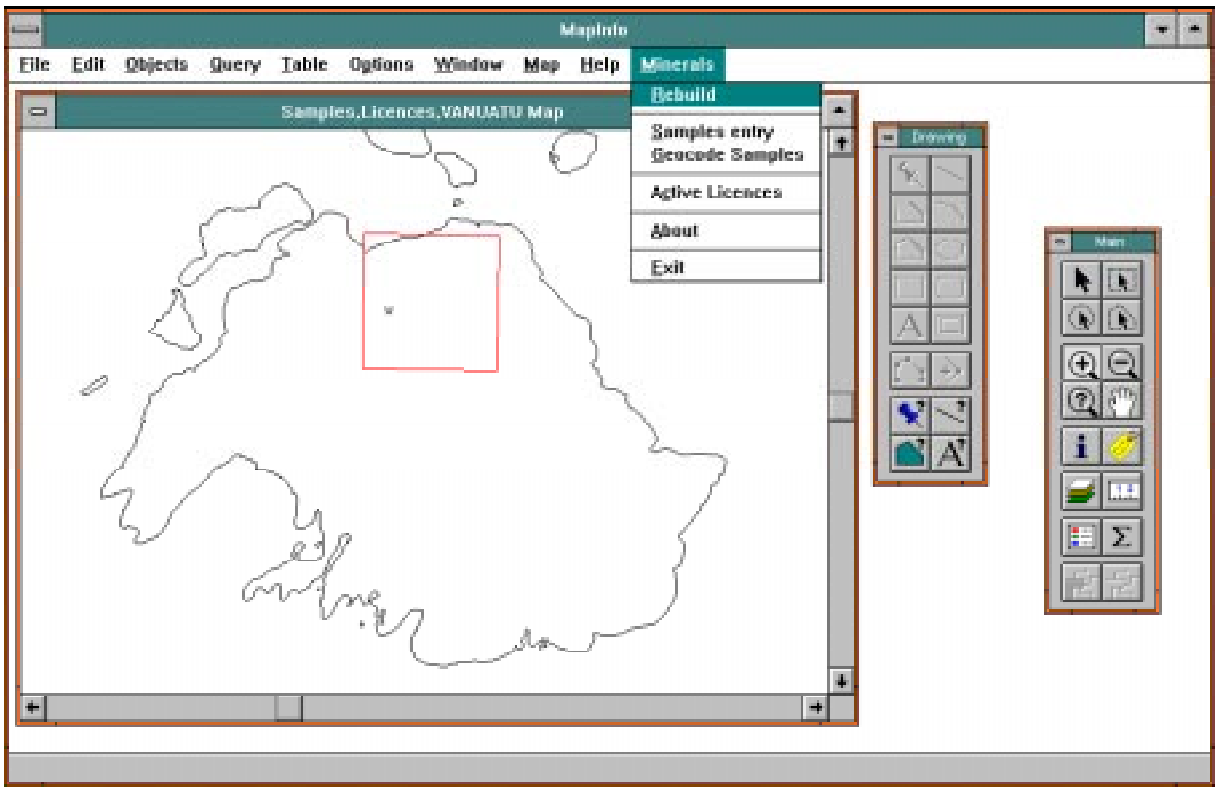
All necessary information for the entry of the details of prospecting licence 1405 has now been gathered together. Note that the database will reject an incomplete form.


Prospect Licence
Prospecting Licence
Display related Samples:
Find Record
Prospecting Licence No: 1405
Licence location: Fatmalapa
Date Applied For: 03-Oct-80
Company ID: Melanesia Exploration (Australia) Lt
Island: Efate
Date Granted: 16-Feb-81
Licence Fee: VT 100,000.00
Date Fee Paid: 06-Nov-80
Fee Paid: VT 100,000.00
Outstanding: VT 0.00
Longitude Latitude
168.335 -17.54214
168.42913 -17.54339
168.42785 -17.63369
168.33368 -17.63229
Date of Relinquishment: 16-Feb-83
Application / Renewal: App1
Minerals Sought:
Area: 100.14 sq km
Reports associated with Prospecting Licence
Remember that when information about Prospecting Licences has been entered , a record has to be made of which Reports relate to each Prospecting Licence. This association is performed by picking related Reports from the Report ID list. If the report does not appear in the list then its details must firstly be input on the Report form.
To view further information on any Report, click the 'plus' button.
Report ID:
Report Title:
Folder Number:
Record: 1 of 8

3.1.6 Rebuild in MapInfo

Prior to clicking the MapInfo button on the Main Screen, the Operator must ensure that all data entry forms have been closed. This is because data cannot be updated from MS Access and MapInfo at the same time.

The user then selects the Rebuild command from within the Minerals menu. The polygon representing the particular Prospecting Licence area is then rebuilt based on the coordinates entered in the data entry form in Access.



3.2 How to enter the Reports.

Each report entered in the database should be cross-referenced to any related prospecting licence numbers. It is recommended that a label displaying the Report Number be used on each report, with a red dot marked on it to confirm if the report has been cross-referenced with the relevant prospecting licence numbers in Access. A green dot should be used to denote that all the samples described in the report have been entered and referenced in Access/MapInfo.

3.3 How to enter the Samples.

3.3.1 Entering data in the Samples Form.

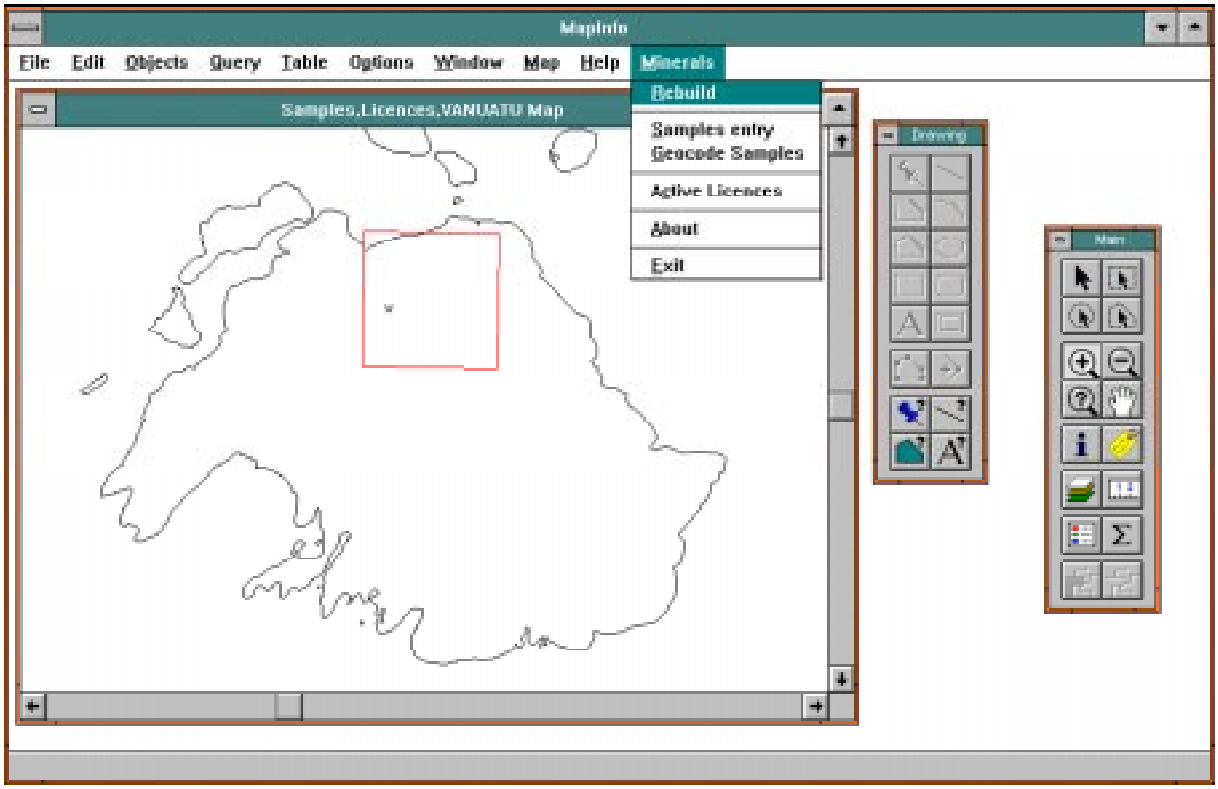
From the report the sample data is entered. The operator should ensure that the Sample ID is based on the Prospecting Licence ID plus the Sample number given by the prospecting company. For example, Prospecting Licence 1404 and Sample Number 333 would combine to form Sample ID 1404/333.

The geodetic coordinates of the sample should be entered if known, otherwise the Latitude and Longitude fields on the form should be set to zero.

3.3.2 Locating the Samples.

On selecting the Samples entry command from the Minerals menu in MapInfo, the operator works on the Sample Table in Read/Write Mode. A browser corresponding to the Sample Table opens and the operator should select the sample to be located and then immediately shift to the map view where the sample location should be pinpointed. In order to aid sample location , it is recommended that the Vanuatu drainage layer be switched on.

Care should be taken to ensure that samples that have already been referenced are not re-referenced by mistake.



3.3.3 Geocoding the samples back to the data tables.

When all samples have been referenced, the operator must then select the Geocode Samples command from within the Minerals menu. This fills in the Long/Lat fields in the Sample Table by picking up the values in MapInfo and transferring them into the above Access..

4. Recommendations

- The Prospecting licence boundaries coordinates must be acquired from the prospecting company in Geodetic/WGS84 format.
- The prospecting company should provide a summary spreadsheet of the samples taken as an annex. This spreadsheet should conform to the format detailed below:

Attribute name	Data Type	Width	Description
Sample ID	Text	50	Unique Identifier: Prospecting Licence Number / Sample Number (e.g. PL122/236578)
Prospecting Licence Number	Text	7	Unique Identifier assigned sequentially for each prospecting area (e.g. PL122)
Sample Number	Text	10	Company Sample Number (eg:236578 or 236578a)
Island	Text	20	Island name where the sample was taken
Location	Text	50	Location Name where the sample was taken
Minerals	Text	50	The names of the minerals found in the sample e.g. pyrite
Laboratory Name	Text	20	Laboratory Identifier for the sample analysis
Geological Description	Text	255	Field Notes / General geological comments relating to the sample
Comments	Text	255	Other comments and additional information, e.g. sampling quality, analysis precision etc.
Longitude	Number		Sample longitude in WGS84
Latitude	Number		Sample Latitude in WGS84
Sample Type	Text	10	The sample category, e.g. Rock chip, stream sediment, rock float, rock channel sample etc.
Ag	Number		Silver value in parts per million (ppm)
Al	Number		Aluminium value in parts per million (ppm)
As	Number		Arsenic value in parts per million (ppm)
Au	Number		Gold value in parts per million (ppm)
B	Number		Boron value in parts per million (ppm)
Ba	Number		Barium value in parts per million (ppm)
Be	Number		Beryllium value in parts per million (ppm)
Bi	Number		Bismuth value in parts per million (ppm)
Ca	Number		Calcium value in parts per million (ppm)
Cd	Number		Cadmium value in parts per million (ppm)
Ce	Number		Cerium value in parts per million (ppm)
Cs	Number		Caesium value in parts per million (ppm)
Co	Number		Cobalt value in parts per million (ppm)
Cr	Number		Chromium value in parts per million (ppm)
Cu	Number		Copper value in parts per million (ppm)
Fe	Number		Iron value in parts per million (ppm)
Ga	Number		Gallium value in parts per million (ppm)
Ge	Number		Germanium value in parts per million (ppm)
Hg	Number		Mercury value in parts per million (ppm)
K	Number		Potassium value in parts per million (ppm)
La	Number		Lanthanum value in parts per million (ppm)
Li	Number		Lithium value in parts per million (ppm)
Mg	Number		Magnesium value in parts per million (ppm)
Mo	Number		Molybdenum value in parts per million (ppm)
Na	Number		Sodium value in parts per million (ppm)
Ni	Number		Nickel value in parts per million (ppm)
P	Number		Phosphorous value in parts per million (ppm)
Pb	Number		Lead value in parts per million (ppm)

Pt	Number	Platinum value in parts per million (ppm)
S	Number	Sulphur value in parts per million (ppm)
Sb	Number	Antimony value in parts per million (ppm)
Sc	Number	Scandium value in parts per million (ppm)
Si	Number	Silicon value in parts per million (ppm)
Sn	Number	Tin value in parts per million (ppm)
Sr	Number	Strontium value in parts per million (ppm)
Te	Number	Teryllium value in parts per million (ppm)
Ti	Number	Titanium value in parts per million (ppm)
V	Number	Vanadium value in parts per million (ppm)
W	Number	Tungsten value in parts per million (ppm)
Y	Number	Yttrium value in parts per million (ppm)
Zn	Number	Zinc value in parts per million (ppm)
Zr	Number	Zirconium value in parts per million (ppm)
Minerals	Memo	Minerals found in samples

- It is recommended that the prospecting Company provides their sample data in the format above on digital media (MS-Excel preferred).
    - All coordinates must be given in Geodetic/WGS84.
    - The Land Survey department should supply a MapInfo layer including the Vanuatu coastlines in WGS84 to the Department of Geology as soon as the islands have been surveyed.
    - The Land Survey department should supply a MapInfo layer including the Vanuatu Drainage lines in WGS84 to the Department of Geology as soon as the islands have been surveyed.
    - A MapInfo interface should be developed to ease the use of the display capabilities of MapInfo and to enable the production of thematic maps from this part of the system, just as data reports are produced from Access. This work comprises Phase 2 of this project as previously stated.
- It is recommended that a label displaying the Report Number be used on each report, with a red dot marked on it to confirm if the report has been cross-referenced with the relevant prospecting licence numbers in Access. A green dot should be used to denote that all the samples described in the report have been entered and referenced in Access/MapInfo.

5. Glossary of Terms

Attribute
Term used in database design to describe different pieces of information about an entity; for example, a Prospecting Licence is an Entity (something that information is stored about) and an example of one of its attributes would be the Prospecting Licence Number.

Bound Control
An object on a form or report whose contents is based on a field in an underlying table or query.

Command Buttons
A button on a form that carries out a certain function; for example, all forms in the Vanuatu Mineral Resources Database have a Close button. Some forms have other buttons on them that open other forms.

Caption
The name that is displayed at the top of a form or report window, or the label of a field on a form.

Check Box
A control on a form that stores a 'Yes/No' value. For example, the Report Form has check boxes on it in order that the data inputter can record whether or not a report contains maps or field notes etc. When checked, a cross appears in the box, which is stored as a 'Yes.'

Combo Box
This is a scrolling list of values that the user can pick from when inputting data, and its advantages are similar to a List Box, except with many Combo Boxes, the user can input a new value if the required one is not already in the list.

Criteria
A set of limiting conditions used in a query to restrict the output to a specific group of records. For example, many of the queries in the Vanuatu Mineral Resources Database require the user to select a value from a list prior to running their selected query.

Data Type
This determines what kind of values are allowed in a field. For example, text cannot be stored in a field with the Number data type.
Common data types include, Text, Number, Date/Time and Yes/No, but there are many more.

Datasheet
Data from a table, form or query displayed in a row-and-column format, similar to a spreadsheet.

Design View
A window displaying the design of a table, form, query or report. In this view, existing objects can be modified, and new ones can be created.

Entity
Term used in database design to describe something about which information is known. For example, A Prospecting Licence is an Entity, and its attributes include the Prospecting Licence Number, Date of issue, Fee paid etc.

Focus
This refers to the most current cursor position on a form. Whichever field on a form has the cursor in it is said to have the focus.

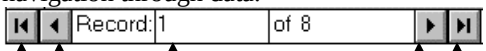
Form

A form is a screen where a user can input and edit information. The form is based on a table, meaning that when data is typed into the form, it is stored in the underlying table. Forms may sometimes be based on more than one table, i.e. a query.

Form View
This is the view of the form that the user sees when opening a form and entering data. Forms have two other kinds of view ; design view, which is the layout of the form's design without the display of underlying data, and datasheet view, which is a view of the data the form is based on, in row-and-column format, similar to a spreadsheet.

List Box
This is a simple list of values that the user can select from, instead of having to type them in. The main advantage is that data will always be input correctly and consistently if a list is used.

Navigation Buttons
In form view at the base of the screen, there is a horizontal scroll bar containing buttons that are used to aid navigation through data.



Go to last record
Go to next record
Go to specific record (user types which one in box shown)
Go to previous record
Go to first record

One-to-many Relationship
A one-to-many relationship is the most common type of relationship in a relational database. In a one-to-many relationship, a record in Table A can have more than one matching record in Table B, but a record in Table B can only have one matching record in Table A. A typical example of this kind of relationship is that between Prospecting Licence and Sample in the Vanuatu Mineral Resources Database; a Prospecting Licence may have one or more Samples associated with it, but in order for a Sample to be stored in the database, it must be linked to a Prospecting Licence.

One-to-one Relationship
In a one-to-one relationship, a record in Table A can have no more than one matching record in Table B, and vice verse. This kind of relationship is unusual, but an example might be of a database containing employee salary details, with one table containing personal details such as name and address etc, and the other table containing the person's name, manager and current salary; in this instance there would be a one-to-one relationship between the two tables.

Query
Queries enable the user to retrieve data from their database that matches certain conditions or criteria; the data that is retrieved depends on the structure of the query. Queries are an efficient way of viewing related data from several different tables at once.

Read-only
In the Vanuatu Mineral Resources Database, the results of queries are all set to be 'read-only' meaning the data cannot be altered, but only viewed on screen.

Record Selector
Within a data entry form, the left-hand side of the form often has a small box containing different symbols denoting the status of a record in the database, i.e.

Record that is currently being viewed, which has already been saved

New Record

Record edited but not yet saved - changes can be undone by pressing 'Esc'

Record being edited by another user

Relationship
An association between common fields (columns) in two tables. For example, the Prospecting Licence and Sample tables are related on Prospecting Licence ID (PL_ID).

Report
Output of data from a query or table in Microsoft Access in document form.

Scroll Bars
A typical Windows-style control, which aids the user to view different parts of the screen or navigate their way through a combo box. Scroll bars can either be vertical, appearing at the right-hand side of the screen, or horizontal, appearing at the base of the screen.

Security
A set of features used to specify or restrict the access that specified users or user groups have to data and objects in a database.

Source
Each form, report, query and every individual field on each of these objects has this property, referring to which underlying table or part of a table its data is derived from.

Switchboard
The initial screen that the user is presented with after logging onto the Vanuatu Mineral Resources Database. It is from this screen that they navigate their way around the system.

Tab Order
The order in which the cursor moves from one field to the next on a form on pressing the Tab or Enter key.

Table
The fundamental structure of a relational database management system. In Microsoft Access, a table is an object that stores data in records (rows) and fields (columns). The data is usually based on one particular category, or ‘entity.’

Text Box
A control that provides a place to enter or view text in a form or report.

Validation Rule
A rule that sets limits or conditions on what can be entered in one or more fields. Validation rules can be set for a field, record or control on a form. The rule is checked when the focus moves from one field or control to the next. Microsoft Access displays a different message whenever the rule is violated.

Wizards
A Microsoft Access tool that asks the user questions and creates an object according to his or her responses; for example, tables, queries, reports, forms, and controls on forms such as buttons and combo boxes can all be created quickly using Wizards.